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# NUTRITION COMMITTEE NEWS

For exchange of information on nutrition education and school lunch activities.

U. S. DEPARTMENT OF AGRICULTURE, Washington, D. C.

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## WHAT'S HAPPENING TO USA FOOD CONSUMPTION?

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### WHAT FOOD SUPPLY FIGURES SHOW

The American market basket contains a wider variety of foods and more of certain important nutrients today than at the beginning of the century. Several factors have played a part in bringing about these changes. Technological advances in agriculture and in marketing have increased the quantities and kinds of foods in the market. Higher incomes have enabled more people to buy the kinds of foods they want. Furthermore, through education people have become more aware of the importance of nutrition.

### How we arrive at food supply estimates

Commodity specialists in the U. S. Department of Agriculture provide nutritionists with yearly per capita estimates on the number of pounds of the various foods brought into the Nation's kitchens. These estimates, often referred to by economists as "disappearance" data, are obtained by adding together the total quantities of food produced in this country each year, the quantities of food carried over from the previous year, and all imported foods. Deducted from this total available for consumption are the quantities of foods that are exported, left over at the end of the year, taken by the Armed Forces, or used for feed, seed, or non-food purposes. Estimated losses occurring in distribution channels are deducted. The remaining food is considered to have "disappeared" into civilian channels and to approximate annual consumption. The figures represent economic consumption rather than physiological ingestion, since the food supply is measured at the retail level.

These per capita estimates generally reflect year to year changes satisfactorily. However, they may be less satisfactory at times when there is abnormal accumulation or depletion of retail stocks. For example, in re-

viewing the food supply over the past half-century the years 1945 and 1946 appear to be years of high food consumption and consequently peak years for most of the nutrients. Since the food supply data measure trends at the retail level, economists explain these peak years as being partly due to abnormally high stock accumulation by both retailers and consumers. This was particularly true after V-J Day because stocks had been depleted in 1945 and prices were expected to go up.

The most important use of the national food supply figures, a historical series dating back to 1909, is to measure longtime trends in average levels of food and nutrient consumption in the country as a whole. They do not provide a basis for evaluating the nutritional levels of the diets of groups within the population. The survey data, described on page 3, provide such a basis for the food supplies of groups of households.

### What are trends in food consumption?

In brief, the trend has been toward more milk and its products (other than butter), meat and poultry, eggs, fats, and sugars (figs. 3, 5, 7). We are also eating more green and yellow vegetables and citrus fruits and tomatoes, but less of many of the other kinds of vegetables and fruits, especially potatoes (figs. 9, 11). Consumption of grain products has been steadily downward (fig. 7). What effect have these shifts had upon the nutritional value of the food supply?

### Total calories are down

The food supply in 1909 was almost 3,600 calories per person per day compared with about 3,200 in 1956. The lowered caloric value of the food supply reflects a reduced caloric need. During the past half century we have had a marked decrease in percentage of the population on farms—35 percent in 1909 compared with 12

percent today. We also have had widespread increases in many laborsaving devices on farms, in factories, and in homes. Consequently, people's activities require less energy than formerly. Also contributing to a decreased caloric need is the increasing proportion of elderly persons in the population.

Actual per capita caloric consumption is lower than formerly. But when suitable adjustment is made for changes in activity and in age distribution of the population the average caloric consumption is about equivalent to what it was at the beginning of the century (fig. 1).

### Calories from fat are up

The share of the total calories derived from nutrient fat increased from 32 percent in 1909 to 41 percent in 1956. Meanwhile carbohydrates decreased from 56 percent to 47 percent. Protein has stayed around 11 to 12 percent.

The average quantity of nutrient fat in the food supply was 126 grams in 1909-13. In 1935-39 this had increased to 133 and by 1956 it had reached the high level of 148 grams, an increase of 17 percent since the turn of the century (fig. 2).

The increase in total fat from 1935-39 to 1956 is derived about equally from animal and vegetable sources. In the contribution to fat of foods from animal sources, the large increase in use of meat, poultry, and fish is somewhat offset by the decrease in use of butter. Butter consumption is about half of what it was in 1935-39 and lard consumption has decreased slightly. Although margarine provided 3 times the amount of fat as in 1935-39, its increase has not quite equaled the decrease of butter. Together the table fats, butter and margarine, are down almost 15 percent as sources of fat. However, salad dressings are now contributing one and a half times as much nutrient fat as two decades ago.

### More protein from animal sources

At the beginning of the century, flour and cereal products stood first among food groups in supplying protein; the meat, poultry, fish group was second. Consumption of grain products has decreased steadily until now it is only one-half its amount in 1909 (fig. 7). As a result, grains have shifted to third place in importance in providing protein. The meat, poultry, fish group has moved to first place and dairy products to second.

All animal products combined have been providing an increasing share of the protein. Two-thirds of the total protein in the food supply today comes from animal sources compared with one-half in earlier years.

The protein in the food supply was at its highest level in 1909 and again in 1945-46—about 103 grams per person per day (fig. 2). Protein was lowest (88 grams per person per day) in 1935 when meat, poultry, fish

## WHAT THE FOOD SUPPLY AND DIETARY SURVEYS TELL

- Some U. S. diets have room for improvement in at least one key nutrient

	<i>Number of families that could use more</i>
Calcium .....	3 in 10
Ascorbic acid .....	1 in 4
Vitamin A value .....	1 in 5
Thiamine .....	
Riboflavin .....	1 in 7
Protein .....	1 in 10
Iron .....	
Niacin .....	

- Whose diets have room for improvement
  - Especially diets of families in the South
  - Especially diets of families with low incomes
  - But also, diets of families elsewhere and of some families with higher incomes
- What to do about it
  - For higher calcium and riboflavin—stress milk and cheese
  - For higher A and C—stress vegetables and fruit in general
    - Accent citrus fruit
    - Accent dark green and deep yellow vegetables
    - Accent potatoes and sweetpotatoes
    - Accent tomatoes, melons, and berries—in season
  - For higher thiamine—stress grain products, and pork
    - Accent whole grain, enriched and re-stored flour, cereals, and bread
  - For higher protein, iron, and niacin—stress meat, poultry, fish, eggs, grain products, dry beans, and nuts
    - Also stress milk for higher protein
    - Accent whole grain, enriched and re-stored grain products for iron and niacin

consumption reflecting the economic situation of the population dropped to its lowest point. By this time consumption of grain products had declined to a level considerably below what it was in 1909. Since 1946 protein available for consumption has fluctuated between 94 and 97 grams per person per day.

### More calcium and riboflavin

Some nutrients follow the trend of specific foods more closely than others. Calcium and riboflavin are two of these. The quantity of these nutrients in the food supply is closely associated with the total consumption of



milk and its products (figs. 4, 5). Milk products (excluding butter) provide three-fourths of the calcium and one-half of the riboflavin in the food supply. Available supplies of these nutrients were at their peak level in 1945-46 when consumption of milk products was highest. The two nutrients have remained at slightly lower levels since 1947-49.

### B-vitamins and iron up largely because of enrichment

In the early forties iron, thiamine, riboflavin, and niacin were added to bread and flour under the enrichment program. Consequently, available supplies of these nutrients markedly increased at that time (fig. 6).

In 1956 the enrichment of grains added the following to the food supply:

	Percent
Iron .....	14
Thiamine .....	30
Riboflavin .....	11
Niacin .....	15

Since the early forties, however, not all of the increases in supplies of iron and B-vitamins were due to enrichment. Steady increases in the consumption of dairy products increased the supply of riboflavin, and increased consumption of meat and poultry since the midthirties contributed greatly to the supply of iron and B-vitamins.

Despite the important contribution which enrichment of grain products has made to national food supplies of the B-vitamins and iron, these nutrients have been declining in recent years. A major force in counterbalancing the effect of the enrichment program has been the decreasing consumption of grain products which, even before enrichment, was a large source of the B-vitamins and iron. Use of another good source of some of these nutrients—dry beans and nuts—has also lessened. Moreover, recent decreased consumption of pork over beef has had a lowering effect on supplies of thiamine.

### A and C increase with vegetables and fruit

While vegetables and fruits are good sources of iron, calcium, and some of the B-vitamins, their major contribution to the food supply is in vitamin A value and ascorbic acid. They provide about 60 percent of the vitamin-A value and 90 percent of the ascorbic acid in the food supply.

Large increases in green and yellow vegetables are chiefly responsible for the improvement in the vitamin-A value of the food supply (figs. 8, 9). The supply of this vitamin was highest in the years 1943 to 1946 when victory gardens were popular. The contribution of the potato-sweetpotato group to vitamin A in the food supply dropped from 27 percent in 1909-13 to about 10 percent in 1956 because sweetpotato consumption dropped by two-thirds over this same period.

Large increases in consumption of citrus fruit and tomatoes and green and yellow vegetables accounted for the large and steady upward trend in ascorbic acid from 1909 to 1946 (figs. 9, 10, 11). The ascorbic-acid level increased more than one-fourth during this period. Increases in the aforementioned foods more than compensated for the marked decreases in potatoes and sweetpotatoes, once major contributors of ascorbic acid.

Since 1946 the decrease in the total consumption of fruits and vegetables has lowered the vitamin A value and ascorbic acid available in the food supply. In 1956, the ascorbic-acid content of the food supply was estimated to be only about 8 percent higher than in 1909-13, the vitamin A value, 6 percent higher.

## WHAT DIETARY SURVEYS SHOW

Surveys of foods used in households all over the country add to the information about USA diets that we obtain from national food supply estimates. Home economists in the USDA have made dietary surveys during the depression in the midthirties, the wartime period of 1942, postwar in 1948 (cities only), and most recently in 1955. The information gained from the large surveys has been augmented by numerous smaller studies made in selected localities.

These food surveys were made by visiting a sample of households that had been selected by statistical methods to represent all the households being studied. The interviewer obtained from the homemaker a list of all the foods that she had used for the household during the 7 days immediately prior to the visit and how much of each food. The quantities reported were those that the homemaker purchased or brought in from the garden, farm, or home storage, and used up. No adjustment was made for food that may have been discarded in the kitchen, at the table, or left on plates.

From the survey data averages may be obtained that are comparable after suitable adjustments to those from the U. S. food supply data. In addition, averages for groups within the population can be obtained. The 1955 survey provided averages for consumption of food and nutritive value of diets of households in cities and in rural areas in four geographical regions, and at different income levels. Furthermore, information can be obtained on the number of families having food supplies containing specified levels of nutrients from data furnished by families in the surveys.

## Many family diets still not good enough

During the depression years of the midthirties, a third of the diets in this country were graded "poor." Today, only a tenth could be called "poor" by the 1936-yardstick.

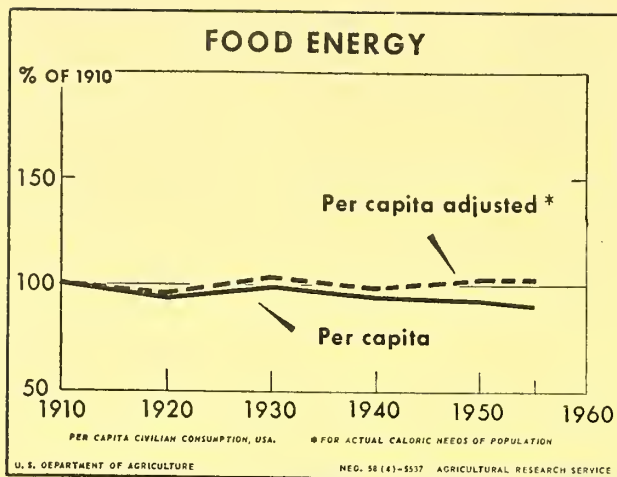


FIGURE 1

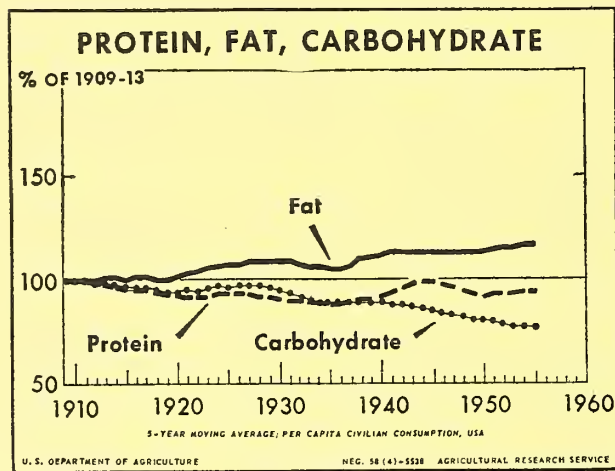


FIGURE 2

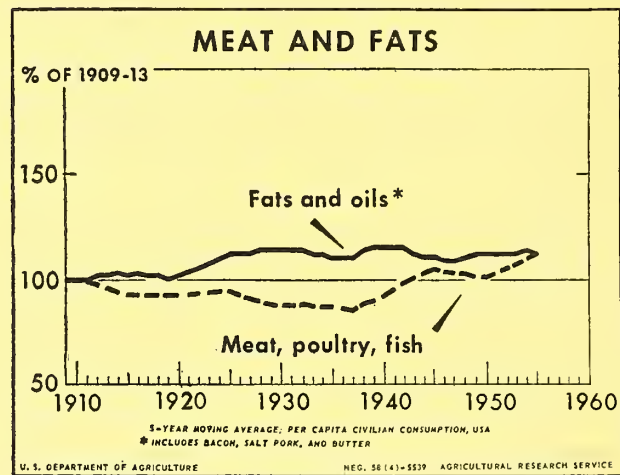


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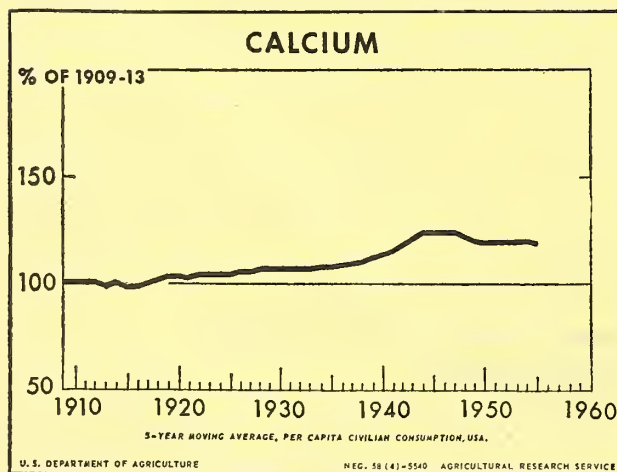


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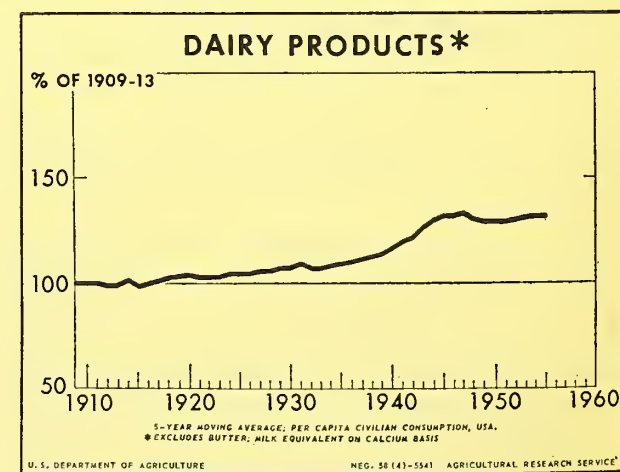


FIGURE 5

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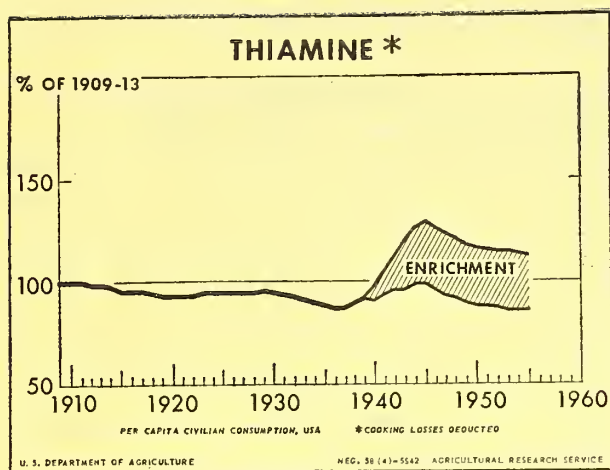


FIGURE 6

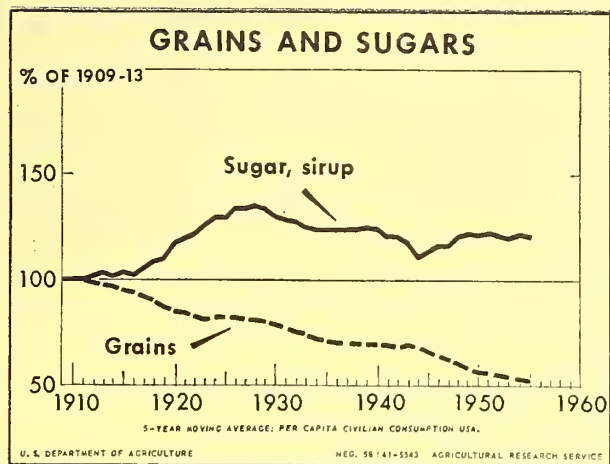


FIGURE 7

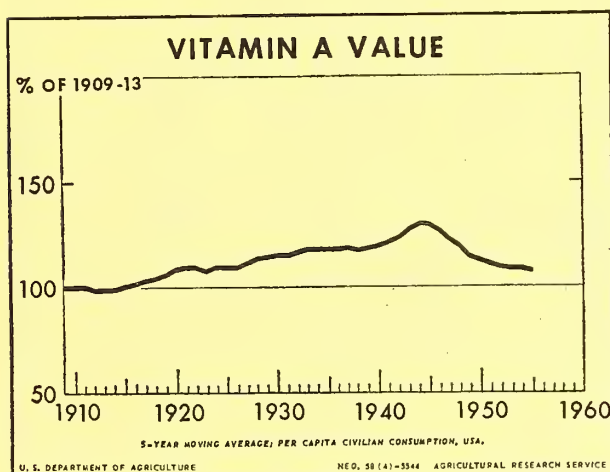


FIGURE 8

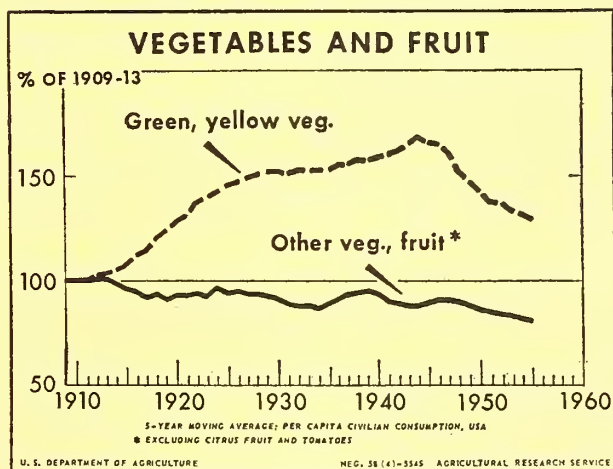


FIGURE 9

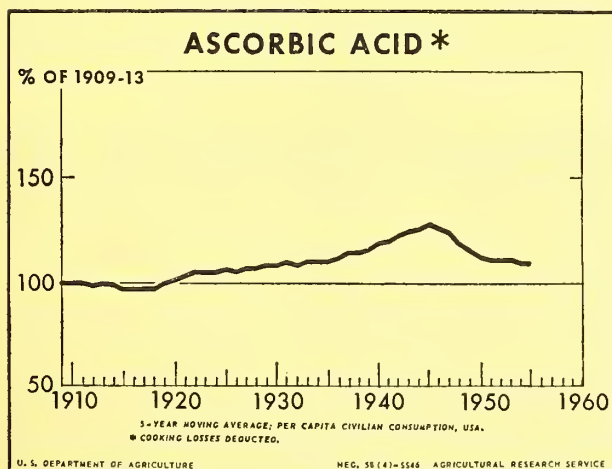


FIGURE 10

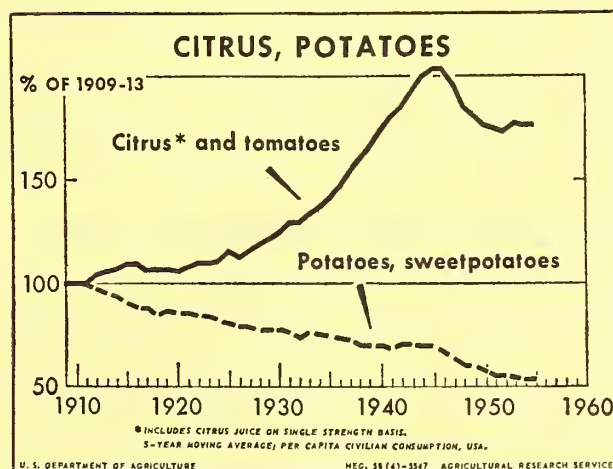


FIGURE 11



Despite this marked improvement, nearly half of the nation's families in a week in 1955 used food that provided less than current allowances of the National Research Council in one or more nutrients. These allowances are designed for planning diets that will be adequate for most people. Because the needs of individuals vary, diets falling below the NRC recommended amounts are not necessarily inadequate nutritionally, and the people consuming them are not necessarily malnourished. They may be faring less well, however, than some of the people whose diets meet the allowances.

## **Calcium and ascorbic acid most often below allowances**

Calcium and ascorbic acid were the nutrients most often in short supply when judged by the NRC recommendations. Nearly 3 households in 10 had diets below calcium allowances. For ascorbic acid 1 in 4 did not meet recommendations. A considerable number of those low in each of these nutrients had diets that met allowances in all other respects.

Nearly two-thirds of the calcium in the diets came from milk and its products. As a group, families with recommended levels of calcium averaged over twice as much milk per person as the group not meeting allowances.

Nearly all of the ascorbic acid in the diets came from fruits and vegetables—a great deal of it (over one-third) from citrus fruits alone. Families whose diets met ascorbic acid allowances used over twice as much fruits and vegetables per person as those not meeting allowances. Furthermore, a much higher proportion of their fruits and vegetables were represented by the ascorbic acid-rich citrus fruits.

From 15 to 20 percent of the households had diets below recommended levels in vitamin A value, thiamine, and riboflavin. Less than 10 percent had diets not meeting allowances in protein, iron, or niacin. However, nearly all of those low in protein were low in at least three other nutrients. The groups of foods that contributed most of the protein—milk and milk products, meat, poultry, and fish, and grain products—also supplied significant quantities of vitamins and minerals.

## **Diets in North better than in South**

In 1955 diets of families in the North were better than those in the South in all nutrients except iron and thiamine. Southern families used less milk, less meat, poultry, and fish, and less fruits and vegetables. Because they used much more grain products their diets were as high in iron and thiamine as were northern diets. Grain products also contributed considerable amounts of protein, calcium, riboflavin, and niacin, but not enough to

bring diets in the South up to the levels of those in the North.

## **City diets in North improved more than South from 1948 to 1955**

In these days of rapid communication we have witnessed the gradual disappearance of many of the differences we used to associate with particular geographical areas. When we look at data on family food consumption, however, we find that the South is still different from the North and, surprisingly enough, even more different in the nutritive content of city diets in 1955 than in 1948. Since the 1948 survey did not include farm families it is not known whether the same relationship holds for the farm group.

In 1948 diets of city families in the South averaged slightly higher in iron and thiamine than those in the North and only slightly below in other nutrients. However, by 1955, differences were greater.

The average northern city diet from 1948 to 1955 increased 15 percent or more in protein, thiamine, and niacin and about 10 percent in iron. In the South protein and niacin increased a little less and thiamine and iron much less than in the North. The North had caught up to the South in iron and thiamine and had pushed farther ahead in protein and niacin. Both regions had decreased use of grains by an eighth and had increased consumption of meat, poultry, and fish—the North by over a third and the South by about a half. However, northern families were using slightly more milk and its products in 1955 than in 1948 whereas southerners were using a little less. Total fruit and vegetable consumption had dropped for both regions, but more for the South.

Changes in calcium, vitamin A value, and riboflavin were slight for both regions. However, ascorbic acid content of diets dropped—for the North about one-tenth, for the South over two-tenths. Both groups of families were using somewhat less vegetables. Those in the North were using a little more fruit, while families in the South were using less—particularly of citrus fruits.

## **City diets better than farm in A and C**

Many of us have a picture in our minds of the dining table in the farm home heavy with platters of meat, bowls of vegetables, and pitchers of milk. We tend to think that farm people are better fed than city people. These ideas are not entirely valid, however. It is true that farmers eat more food as measured in terms of calories. In the North a somewhat higher percentage of them had diets that met recommendations in all nutrients. In the South the same percentage of farm as of city families met allowances in all nutrients. But, when diets did not meet allowances in all nutrients, farm



families fared worse than city families. Farm diets in both North and South averaged lower in vitamin A value and in ascorbic acid than city diets.

Farm families everywhere used more milk, grains, fats, and sugars. They used less fruits and vegetables (except potatoes)—particularly of the ascorbic acid-rich citrus fruits and the vitamin A-rich, dark-green and deep-yellow vegetables. However, this survey was made in the spring when gardens might not yet be producing much and when last year's home-canned food might be all gone. In another season more vegetables might have been available on farms.

## **Income makes a difference in diets**

The higher the income a city family has, the better its diet generally is. Farm families also tend to have better diets when they have more money available. But the quality of farm diets is also influenced by the amount and kinds of food produced at home for which no direct cash expenditure need be made. Besides, farm income frequently cannot be measured by money taken in during a single year. Therefore, there is less relationship between the quality of diet and money income on farms than in cities.

High money income does not insure a good diet, however. Even in the city group with an annual income between \$8,000 and \$10,000, 8 percent of the families had food that failed to reach recommended levels in four or more nutrients. For families such as these, good nutrition is clearly an education problem. They need to be convinced of the importance of choosing a good diet regularly and they need to be supplied with reliable information to enable them to do so.

Not all nutrients are affected to the same extent by income level. The nutrient with the closest relationship to income was ascorbic acid. The better off the family, the more likely they were to meet recommended levels of this vitamin—whether they lived in the North or South, in city or country. People with more money to spend used more fruits and vegetables and these foods provided nearly all of the ascorbic acid in the diet. In particular they used a great deal more citrus fruit which alone provided over a third of the vitamin C in the average USA diet. In 1955 families with incomes under \$1,000 used only enough citrus fruit to give them about one-eighth cup of juice a day for each person; those with incomes over \$10,000 had an average of over one-half cup.

The nutrient least related to the income level of the family was thiamine. Families with high incomes were just as likely to fall short in this vitamin as those with low incomes. Some of the best food sources of thiamine were enriched or whole-grain flour, cereals, and bread,

and meat, particularly the meaty parts of pork. With higher incomes, families tended to use less grains and pork, perhaps because of mistaken notions that they are "fattening," or perhaps because they were edged out of the menu by other foods.

## **Low-income families improved most between 1936 and 1948**

Data based on total supplies of food in the Nation have shown that averages for most nutrients were higher in the midforties than before or since. Averages obtained from national dietary surveys of urban families in 1936, 1942, 1948, and 1955 showed similar changes. However, city families in the lower third of the income distribution benefited much more from dietary changes between 1936 and 1942 and between 1942 and 1948 than they did later. At the time of each of the surveys, average quantities of nearly all dietary essentials were greater for those in the highest income third. However, diets of those with relatively low incomes showed greater improvement in all nutrients between 1936 and 1942 and between 1942 and 1948 than did diets of the higher income group. The low-income families were larger consumers of grains and thus benefited most from enrichment programs. They also made much greater gains in consumption of meat and of ascorbic acid-rich citrus fruits.

## **All income groups shared equally in changes since 1948**

Between 1948 and 1955 the rate of increase in nutrient content of the average diet was smaller for the most part than it had been in earlier years. However, protein increased more since 1948 than before because of increased meat consumption. Ascorbic acid decreased owing to some reduction in vegetable consumption and to use of fruits and vegetables from sources less rich in this vitamin.

The trend that was noticed prior to 1948—for diets of low-income families to become more like those of the higher-income groups—seems to have been arrested. Between 1948 and 1955 all of the income groups shared fairly equally in the changes.

## **MATERIALS**

Listing of these materials is for the information of readers and does not necessarily mean recommendation. Materials may be obtained from the addresses given. Symbols refer to—

GPO—Superintendent of Documents, Government Printing Office, Washington 25, D. C.

IDS—International Documents Service, 2960 Broadway, New York 27, N. Y.

USDA—Office of Information, U. S. Dept. of Agriculture, Washington 25, D. C.

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Report of available exhibits. Prepared by Exhibit Committee, Social Welfare and Public Health Section, Southeastern District, N. Y. State Home Economics Assn. 13 pp., 50¢. Check should be made payable to "SWPH Section—S. E. District Home Economics Association" and sent to Mrs. Dorothy C. Inman, Treasurer SWPH, 409 Edgecombe Ave., Apt. 3H, New York 32, N. Y.

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Institute of Home Economics, Agricultural Research Service, U. S. Department of Agriculture, in consultation with the Inter-agency Committee on Nutrition Education and School Lunch. (The printing of this publication has been approved by the Bureau of the Budget, July 27, 1955.)

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